ER Site No. 70: Explosives Test Pit (Water Towers)

ADS: 1334
Operable Unit: Central Coyote Test Area

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Site History

ER Site 70 is identified as Explosives Test Pit (water towers) in the Hazardous and Solid Waste Amendments Act (HSWA) Module. Site 70 is an inactive site located in the southern part of Kirtland Air Force Base (KAFB) approximately 1,000 feet east of Lovelace Road, just south of the twin water towers, near the intersection of Isleta and Lovelace Roads. The site covers 0.38 acres of federally owned land controlled by the United State Air Force (USAF). The site includes features inside a 100-ft by 100-ft square area that is surrounded by a partially intact barbed-wire fence, and a steel and wood observation bunker. The bunker is located approximately 50 ft east of the southeast corner of the fence. A 25-ft by 25-ft concrete pad is situated at the center of the fenced area. Resting on the pad is a 3.5-ft high cylindrical metal die. The die has a 2-ft inner diameter and has vent holes through a bottom base plate and through the die sides near the base plate.

Approximately 15 ft due west of the concrete pad (still within the fenced area) is a 10-ft diameter, 10-ft deep, in-ground, cylindrical, concrete tank. At the ground surface, the tank has a 30-in.-wide concrete collar. The tank bottom was accessed using a crude ladder made of rebar rungs set into the tank wall. The inner tank surface appears to be coated with an asphaltic compound, possibly for water-proofing. Vermiculite is scattered on the ground near the tank along with two pieces of a weathered, hexagonal, wood tank cover. Before the tank was backfilled as a safety measure, it contained accumulated rain water, tumbleweeds, and wind-blown sediment.

The observation bunker southeast of the fenced area is approximately 15 ft long, 7-ft high, and 7.5 ft wide. The bunker is partially buried and it's floor is about 3 feet below grade. The top and front of the bunker are constructed of approximately 1.5-in.-thick steel armor plate, with a viewing port facing toward the fenced area. The bunker sides are constructed of wood. The bunker has several electrical outlets. The bunker was probably used as a control and observation station during the explosive metal-forming tests.

ER Site 70 has features similar to other explosive metal-forming facilities. Typical operations used an open or unconfined system in which firings were conducted in the open in a remote area. The concrete tank would have been filled with water to help transfer the explosive charge energy to the metal workpiece. It was also common practice to have a steel liner inside tanks of this type, but there is not evidence of such a liner at Site 70.

At this type of facility, the die would be assembled either in the work area (the concrete pad) or on the tank apron. The metal workpiece would be placed in the die assembly, a hold-down ring put in place, a vacuum pulled on the die cavity, and the explosive charge would be placed over the center of the metal workpiece. The entire assembly would be lowered to the bottom of the water-filled tank, and the explosive charge detonated. The detonation would create a very short, sharp energy release to a metal workpiece and eject as much as 2,700 gallons of water. Typically less than 1 pound of explosives would be used per detonation. The assembly would then be extracted from the tank and the formed-metal workpiece removed.

Typical support facilities for this type of explosive metal-forming operation included a working area, an observation/instrument facility, and various support equipment. Support equipment usually included air and vacuum equipment, cranes and other heavy equipment, and pumps. Air equipment was used for an aerator or bubble curtain to protect the tank walls. A vacuum was used to remove air between the die and the metal workpiece. The die and the metal workpieces were handled by cranes or other heavy equipment. Pumps were used for filling and dewatering the tank.

No records have been located for this facility, but aerial photographs indicate it was constructed after 1951. ER Project interviews with current and former Sandia National Laboratories/New Mexico (SNL/NM) employees indicate the site may have been active in the 1950s, and an estimated 20 to 30 firings took place.

Previous Investigations - ER Site 70 was first listed as a potential release site based on the Comprehensive Environmental Assessment and Response Program (CEARP) investigation, which identified the site as an area containing a deep, concrete-lined pit with descending reinforced bar ladder, a deteriorated wooden cover for the pit, a large cylinder concrete with reinforcement bar loops laying adjacent to the pit, and an underground observation bunker. The CEARP also reported that the sides of the concrete lined pit appeared black, and noted that this was probably related to burn activities. However, later site inspections indicated that the pit referred to is a cylindrical concrete tank with the inside surface painted with a dark coating, which may be an asphaltic water-proofing agent. The regulatory disposition of the site was uncertain because of a lack of knowledge on activities and possible waste generation. Insufficient information also prevented calculating a Hazard Ranking System (HRS) score for the site.

Subsequent to the CEARP inspection, the Environmental Protection Agency (EPA) conducted a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA). The RFA report included a site description similar to the CEARP, and concluded that the potential for release to the environment could not be assessed due to a lack of information on the nature of wastes and waste management activities.

This site had been scheduled for supplementary reconnaissance sampling under the CEARP, but it appears this sampling was apparently never performed as no analytical data have been identified. RCRA Facility Investigation (RFI) sampling was conducted in December 1994 and August 1995.

In December 1993, KAFB Explosive Ordnance Disposal conducted a surface unexploded ordnance (UXO) and high explosive (HE) survey at the site. No live UXO/HE or debris was found.

In January 1994, RUST Geotech Inc. conducted a surface gamma radiological survey of the site. The area inside and outside the fence, including the observation bunker were surveyed. No anomalies were detected above the background readings of 8 to 12 microroentgen per hour.

Constituents of Concern

Metals

Current Hazards

There are no current hazards at this site related to contamination of the surface or subsurface soils. The backfilled concrete tank presents a driving obstacle.

Current Status of Work

RFI field work was completed in August 1995. A No Further Action (NFA) proposal was submitted to New Mexico Environmental Department (NMED) in September 1997. In December 1999, NMED indicated that the site was acceptable for NFA petition. The NFA was approved by NMED in October 2000 after completing the public review and permit modification process. For safety reasons, the concrete tank was cleaned out and backfilled with engineered fill in May 1997.

Future Work Planned

No further work is planned.

Waste Volume Estimated/Generated

No waste was generated.

Information for ER Site 70 was last updated Jul 9, 2001.